

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference PHNL030788WO	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. PCT/IB2004/050974	International filing date ( <i>day/month/year</i> ) 23 June 2004 (23.06.2004)	Priority date ( <i>day/month/year</i> ) 26 June 2003 (26.06.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant KONINKLIJKE PHILIPS ELECTRONICS N.V.		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).																								
2.	<p>This REPORT consists of a total of 10 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"><input checked="" type="checkbox"/></td> <td style="width: 35%;">Box No. I</td> <td style="width: 50%;">Basis of the report</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input checked="" type="checkbox"/>	Box No. II	Priority	<input checked="" type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input checked="" type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<input type="checkbox"/>	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Date of issuance of this report 03 January 2006 (03.01.2006)
Facsimile No. +41 22 740 14 35	Authorized officer  <div style="text-align: center; font-weight: bold;">Idhir Britel</div>
Telephone No. +41 22 338 70 60	

# PATENT COOPERATION TREATY

REC'D 03 FEB 2005

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From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

To:

see form PCT/ISA/220

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/IB2004/050974

International filing date (day/month/year)  
23.06.2004

Priority date (day/month/year)  
26.06.2003

International Patent Classification (IPC) or both national classification and IPC  
H01H59/00

Applicant  
KONINKLIJKE PHILIPS ELECTRONICS N.V.

#### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

#### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

#### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk - Pays Bas  
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl  
Fax: +31 70 340 - 3016

Authorized Officer

Ramírez Fueyo, M

Telephone No. +31 70 340-4266



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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/050974

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/050974

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**Box No. II    Priority**

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1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/IB2004/050974

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,  
☒ claims Nos. claims 9-12 and 13-21 when dependent on or referring to claims 9-12

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the whole application or for said claims Nos. claims 9-12 and 13-21 when dependent on or referring to claims 9-12
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
- |                            |  |
|----------------------------|--|
| the written form           | <input type="checkbox"/> has not been furnished            |
|                            | <input type="checkbox"/> does not comply with the standard |
| the computer readable form | <input type="checkbox"/> has not been furnished            |
|                            | <input type="checkbox"/> does not comply with the standard |
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
- ☐ See separate sheet for further details

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/IB2004/050974

**Box No. IV Lack of unity of invention**

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☒ not paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
  - ☒ not complied with for the following reasons:  
**see separate sheet**
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
  - ☒ the parts relating to claims Nos. 1-8 and 13-21 when dependent on or referring to claims 1-8

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	3,4, 13-15, 17
	No: Claims	1, 2, 5-8, 16, 18-21
Inventive step (IS)	Yes: Claims	3,4
	No: Claims	1,2, 5-8, 13-21
Industrial applicability (IA)	Yes: Claims	1-8, 13-21
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item IV.**

The separate groups of inventions are:

Claims 1-8 and 13-21 when dependent on or referring to claims 1-8:

Electronic device with improved dynamic behaviour

Claims 9-12 and 13-21 when dependent on or referring to claims 9-12:

Electronic device with improved configuration

The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

The prior art has been identified as document WO 00/52722 A and discloses (see Fig. 10) an electronic device comprising a microelectromechanical system element, the element comprising first and second electrodes and an intermediate beam with first and second opposing conductive side faces, the first side face facing the first electrode and the second side face facing the second electrode, which beam is movable by application of a driving voltage between said first and second electrodes. Furthermore, the microelectromechanical element is provided on a substrate and the electrodes are provided in planes that are substantially parallel to the substrate.

It follows that the following technical features of independent claims 1 and 9 make a contribution over the prior art and can be considered as special technical features within the meaning of Rule 13.2 PCT:

Claim 1: the second electrode and the second conductive face of the beam form with an intermediate dielectric a first switchable capacitor that is connected in a signal path between an input and an output, and the first electrode and the first side face of the beam form with an intermediate dielectric a second switchable capacitor, that is coupled from the signal path to ground.

Claim 9: the first and second conductive side faces are part of the same electrically conductive layer being a third electrode.

Therefore, there are no common special technical features.

Also, examining the possible correspondence by technical effect, one finds that the

technical effect of the first invention is improving the dynamic behaviour of the electronic device and that the technical effect of the second invention is making manufacture easier and improving electrical performance.

This appears to show lack of corresponding technical effect as well. Consequently, neither the objective problem underlying the subjects of the claimed inventions, nor their solutions defined by the special technical features allow for a relationship to be established between the said inventions, which involves a single general inventive concept.

In conclusion, the groups of claims are not linked by common or corresponding special technical features and define 2 different inventions not linked by a single general inventive concept.

The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

**Re Item V.**

- 1 The following document is referred to in this communication:

D1 : US 6 373 007 B1 (LESNIAK CHRISTOPHER D ET AL) 16 April 2002 (2002-04-16)

- 2 INDEPENDENT CLAIMS 1 AND 19-21

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

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Document D1 discloses (the references in parenthesis applying to this document) an electronic device comprising a microelectromechanical system element, the element comprising first (110) and second electrodes (108) and an intermediate beam (122) with first and second opposing conductive side faces, the first side face facing the first electrode and the second side face facing the second electrode, which beam is movable by application of a driving voltage between said first and second electrodes, wherein the second electrode and the second



conductive face of the beam form with an intermediate dielectric a first switchable capacitor that is connected in a signal path between an input and an output, and the first electrode and the first side face of the beam form with an intermediate dielectric a second switchable capacitor, that is coupled from the signal path to ground.

- 2.2 Furthermore, the subject-matter of independent claims 19-21 is not new in the sense of Article 33(2) PCT, because document D1 also describes the features of these claims, see in particular column 4, line 50 to column 5 line 3 for claim 19.

3 DEPENDENT CLAIMS 2, 5-8 AND CLAIMS 13-18 WHEN DEPENDENT ON CLAIMS 1-8

Dependent claims 2, 5-8, 13-18 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT), the reasons being as follows:

**Claims 2, 5-8, 16 and 18:** the features of these claims are already present in D1.  
**Claims 13-15 and 17:** In these claims a slight constructional changes are defined which come within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen.

4 DEPENDENT CLAIMS 3 AND 4

The combination of the features of dependent claim 3 is neither known from, nor rendered obvious by, the available prior art. The reason is that there is no hint of the feature "the first electrode has a surface area that is larger than that of the second electrode" in the prior art. ~~This feature solves the problem of providing an electronic device according to the prior art having a higher isolation.~~

Claim 4 is dependent on claim 3 and as such also meets the requirements of the PCT with respect to novelty and inventive step.

5 SECOND INVENTION

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/IB2004/050974

In order to speed up the procedure, the attention of the applicant is drawn to the fact that Document D1 is also very relevant for the claims of the second invention.

**6. INDUSTRIAL APPLICABILITY**

The subject matter of the application refers to an electronic device, a front end module, a use of said electronic device and a method of driving said electronic device that are definitely industrially applicable.

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